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ABSTRACT

This bulletin summarizes and interprets some of the main findings of "The Reading Problem in the United States," by Abraham Carp, Chapter III of "The Information Base for Reading: A Critical Review of the Information Base for Current Assumptions Regarding the Status of Instruction and Achievement in Reading in the United States," the final report of a study prepared for the U. S. Office of Education (see ED 054 922). The task for Chapter III was to "survey the literature published in the U. S. between 1960 and 1970 to determine the extent of the reading problem in the country, and to identify, analyze, and summarize existing survey and test data which indicate the reading ability of various populations in relation to 'individual and social needs'." But most of the literature available for review compared a defined population's reading ability only with another population. Some research comparing reading ability with the criteria of individual and social need was in preparation, but available data consisted primarily of: (1) data on illiteracy reported by the U. S. Census Bureau; (2) data on presumed functional literacy as indicated by completion of 5, 8, and 12 years of schooling; and (3) grade achievement on nationally normed reading tests. Tables of the data obtained in each of the areas are provided. It was concluded that the data base is insufficient for adequate estimates of the present deficit in functional literacy. Research to find out what pupils need to be taught to keep them reading into adulthood is recommended. A bibliography is provided. (For related documents, see TM 002 357, 385.) (KM)

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I. RESEARCH 1960-1970 ON THE READING PROBLEM IN THE UNITED STATES

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OFFICE OF EDUCATION
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This bulletin is a digest and interpretation of some of the main findings reported in Chapter III, "The Reading Problem in the United States," by Abraham Carp in *The Information Base for Reading: A Critical Review of the Information Base for Current Assumptions Regarding the Status of Instruction and Achievement in Reading in the United States*, the final report of a study directed by Reginald Corder of the ETS Western Office in Berkeley, California, for the U.S. Office of Education, Project 0-9031, 1971. The full report is obtainable in hard copy or microfiche through ERIC, ED 054 922.

The study was a survey of research from 1960 to 1970 bearing on three problems: the nature and extent of the current deficit in functional literacy, the effectiveness of different methods of teaching reading, and the training of teachers of reading. Using all possible bibliographic sources, the project staff listed over 15,000 documents bearing on these three problems. These were rated independently by five experts, and 1,855 were selected for critical review, including 329 on the first problem, 120 on the first and second, and 31 on all three. Thus the chapter here summarized was based on a critical look at 480 documents bearing on probable deficiencies in reading ability. The list of all 1,855 documents that were reviewed occupies 134 pages of the final report.

The reviews were done by 22 doctoral candidates at the University of California in Berkeley. Applicants for this job all reviewed the same article, using a standard review form of eight pages developed by a technical committee. The most proficient participated in several training sessions and were monitored thereafter by the staff member who synthesized the reviews in each area. The reliability of those aspects of the reviews that could be quantified was determined by having 200 articles reviewed independently by two readers. The coefficients were all above .70 except one of .62 for a rating on "treatment," which was the most sketchily reported. This use of doctoral candidates as reviewers forestalled the objection that established researchers are hypercritical of the research of others. These young students were bent only on extracting whatever solid information they could find in the published reports.

The Task Defined, and Limitations of the Data

For Chapter III the reviewer's charge was to survey the literature published in the United States between 1960 and 1970 to determine the extent of the reading problem in the country, and to identify, analyze, and summarize existing survey and test data which indicate the reading ability of various populations in relation to "individual and social needs."

Unfortunately, Gephart's formulation (1970) holds true for the literature surveyed in this project:

> "Many statements have been made which assert that our society has a reading problem. These assertions have been made with sufficient authority and frequency that they have been accepted as fact: a reading problem exists. What is the desirable level of reading competence to be achieved by the individual in our society? Even more basically, what level of reading competence is necessary to function in our culture? Neither of these questions has been answered on either an empirical or a logical basis. Reading and reading achievement have been the target of measurement efforts over the years, but the data do not answer the two questions cited above." (p. 46)

Hardly any of the literature available for review was concerned with how well a defined population read in comparison with any criterion of individual or social need. There is a body of literature comparing boys with girls, Negroes with whites, Indians on and off the reservation, etc., but very little on how well any defined group read except in reference to some other population.

What is needed is a set of reading tasks known to represent the reading that has to be done by adults in various walks of life, and data on the performance of these tasks by representative samples of our population. To some extent this approach is being used in the National Assessment of Educational Progress (1970) which intends to report performance on a limited set of reading tasks in terms of the percent of defined groups who were able to perform each task. Unfortunately no data were available at the time of this survey of the literature. A more complete sample of

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reading tasks was being prepared by ETS under contract with the U.S. Office of Education during this survey, but again no data on performance were available.

In the absence of such data, the main sources of information on the reading problem in the United States that were found useful in this survey were three: (1) data on illiteracy reported by the U.S. Census Bureau, (2) data on presumed functional literacy as indicated by completion of five, eight, and twelve years of schooling by various populations, and (3) grade achievement on nationally normed reading tests at these levels.

ILLITERACY

The U.S. Census Bureau defines literacy as "the ability to read and write a simple message in any language" (Current Population Reports, Series P-20, No. 217, p. 5). For census purposes, all persons with more than five years of schooling are counted as literate. Those with less than six years are asked whether they can read and write in any language. If the answer is yes, they are classified as literate; if no, illiterate. Although this is far below the level of reading ability required to meet individual and social needs, the incidence of admitted illiteracy in various groups is presumably correlated with deficiencies in functional literacy; hence it shows where reading problems probably exist.

The following table shows that illiteracy in the United States has been declining to a point that augurs its virtual abolition in the near future.

The next table shows that the remaining illiteracy is most common in older groups, especially those of age 65 and over.

The third table shows how illiteracy declines with years of schooling.

Remember that in Tables 2 and 3 the numbers are percents of the 1% of the population classified as illiterate in 1969. The 1970 census was not available.

The nearly universal school attendance of the present generation and the increased holding power of schools have made illiteracy quite rare. Recent statistics indicate an illiteracy rate of only .3 of one percent in the group aged 14 to 24. About 77% of those now classified as illiterate are over 45. Of those 25 years of age and over, 7.5% in the South have had less than five years of schooling as compared with 4.0% in the West, 3.7% in the Northeast, and 2.9% in the North Central; in metropolitan areas 4.3%, elsewhere 7.1%. Although the Negro illiteracy rate is still 3.6% as compared with 0.7% for whites, the difference lies mainly in those over 45. In the group aged 16 to 24, the illiteracy rate is 0.6% for Negroes and 0.2% for whites. One hundred years ago the Negro illiteracy rate was 80%; fifty years ago it was 23%; even ten years ago it was 7.5%. The reduction to less than one percent in the present generation is remarkable, and the drive toward equality of educational opportunity may soon reduce it to zero.

There may be a problem of literacy that has not attracted as much attention among persons of Spanish origin. The Current Population Report P-20, No. 213, of the U.S.

Table 1. Percent Illiterates in the U.S.Population by Race, 1870-1969

(Data for 1870-1940 are for age 10 and over; since then, age 14 and over.)

	1870	1880	1890	1900	1910	1920	1930	1940*	1947	1952	1959	1969
Total	20.0	17.0	13.3	10.7	7.7	6.0	4.3	2.9	2.7	2.5	2.2	1.0
White	11.5	9.4	7.7	6.2	5.0	4.0	3.0	2.0	1.8	1.8	1.6	0.7
Other	79.9	70.0	56.8	44.5	30.5	23.0	16.4	11.5	11.0	10.2	7.5	3.6**

*Estimated. **Negro only in 1969.

Source: U.S. Census Bureau, Current Population Reports, Series P-20, No. 217, 1971.

Table 2. Percent of Illiterates, All Races, in Four Age Groups, 1969

Age	14-24	25-44	45-64	65+
Male	8.6	16.7	36.3	38.4
Female	5.1	16.6	26.3	52.0
Both	6.8	16.5	31.3	45.4

(Of the male illiterates, all races, 8.6% were 14 to 24 years old, 16.7% were 25 to 44 years old, etc.)

Source: Ibid.

Table 3. Percent of Illiterates, All Races, with 0-5 Years in School, 1969

Years in school:	0	1	2	3	4	5	(6+ assumed literate)
Male	57.0	48.4	21.3	12.5	3.6	3.1	
Female	58.3	45.8	21.6	9.0	5.4	1.4	
Both	57.4	46.6	21.8	10.9	4.5	2.3	

(Of the male illiterates, 57% had no schooling, 48.4% one year, etc.)
Source: Ibid.

Bureau of the Census (1971) identified respondents with respect to Spanish origin. Although the information is not categorized in the same way as in other Population Reports on illiteracy, reasonable estimates can be made. About 5.75 million persons of Spanish origin are 14 years of age and older. Approximately 9.3% of this group have completed less than five years of school as compared with 4.1% of the U.S. population in the same age range. Within the population of Spanish origin, educational attainment is lower for those of Mexican and Puerto Rican background than for those of Cuban, Central or South American, or other Spanish background. This suggests that illiteracy may be more of a problem for Mexican and Puerto Rican than for other Spanish American groups.

FUNCTIONAL LITERACY AS INDICATED BY YEARS OF SCHOOLING

UNESCO, the Bureau of the Census, and the U.S. Army have suggested that a minimal level of functional literacy is indicated by the completion of four or five years of schooling. The Division of Adult Education of the U.S. Office of Education has defined the educationally disadvantaged population as those individuals 18 years of age and older who have completed less than eight years of formal schooling (1967). Such persons are characterized as functionally illiterate, meaning that many can read and write in some degree but are unable to become productive citizens in today's society (p. 9). High school graduation is treated in this and other publications as the first sure indication of the level of functional literacy required in American life. Since most people have completed their education by age 25, we shall be concerned in this section with the percent of various groups aged 25 and older who have completed less than 5, 8, and 12 years of schooling, representing minimal, attainable, and optimal goals for the short-term future.

The contrast between the figures for the total group aged 25 and older (at the left) and for those aged 25-29 (at the right) shows again, as in the case of illiteracy, that lower levels of schooling are associated with age. Of about 6 million persons over 14 years who have less than 5 years of school, about 320,000 are under 25 and about 4 million are over 55. Thus the problem of insufficient schooling seems to be on its way out. The remaining shortages in the adult population are most serious for those of Puerto Rican and Mexican background, followed by Negroes.

Table 4. Percent Aged 25+ with Less Than 5, 8, and 12 Years of Schooling

In school less than	Age 25 and Over					Age 25-29				
	Total	White	Negro	Male	Female	Total	White	Negro	Male	Female
5 years	5.3	4.2	15.1	5.9	4.7	1.1	0.9	2.5	1.4	0.8
8 years	14.4	12.3	12.4	15.4	13.4	3.7	3.2	7.1	4.2	3.0
12 years	44.8	42.5	66.3	45.1	44.4	24.7	22.3	43.7	23.3	25.6

Source: Current Population Reports, Series P-20, No. 207, 1970

Table 5. Percent Aged 25+ with Deficient Schooling by Race and Residence

In School* less than	WHITE					NEGRO				
	Total	Metro	Suburb	Rural	Farm	Total	Metro	Suburb	Rural	Farm
5 years	4.2	4.7	2.6	5.4	5.4	15.1	9.8	12.2	26.0	37.9
8 years	12.5	12.9	8.4	15.9	18.5	31.8	24.0	27.4	48.3	64.2
12 years	42.6	43.7	34.6	48.8	58.1	66.3	61.1	61.6	78.4	88.3

Source: Current Population Reports, Series P-20, No. 207, 1970.

In Table 5 "Metro" means "Metropolitan, central city"; "Suburb" refers to areas outside the central city; "Rural" to small cities and towns. The figures on length of schooling for whites and Negroes come out as one might expect: the suburban population has the most schooling, followed by metropolitan, rural, and farm, with the probably temporary exception that suburban Negroes have slightly less education than those in the central cities.

It does not require a table to document the well-publicized fact that length of schooling is related to income. For example, the source cited above reports that for the total employed male population the median years of schooling were 10.6 for those making 3 to 6 thousand dollars a year and 12.3 for those making 6 to 9 thousand dollars a year. All indexes of educational attainment are closely related to socio-economic status.

If five years of schooling is accepted as the standard of functional literacy, there are 8 million functional illiterates; if eight years, 19 million; if twelve years, of 70 million. The deficit is related to age, race and ethnic origin, location of residence, and region of the country (see p. 5).

FUNCTIONAL LITERACY AS INDICATED BY READING TESTS

Table 6 below is typical of several tables in the report, derived from published norms for the most widely used reading tests, showing the percent of students in a given grade (here grade 8) whose scores equal or exceed the average score made in that grade and in each of several grades below.

STEP II refers to the Sequential Tests of Educational Progress, Series II; MAT to the Metropolitan Achievement Tests; CAT to the California Achievement Tests; and CTBS to the Comprehensive Tests of Basic Skills. The source in each case is the published norms for the reading test in these batteries. By definition 50% of the students in grade 8 must score at or above the average for that grade; hence the first figure for each test is the same; but beyond that point the figures reveal the fact that publishers differ in selecting the population on which their norms are based and in the manner in which grade equivalent scores are computed. Despite this variation, there is enough in common in these tables to justify the following conclusions, if the figures are regarded as approximations:

Table 6. Percent of Grade 8 Reading at or Above the Averages of Grade 4-8

Test	Grade 8	Grade 7	Grade 6	Grade 5	Grade 4
STEP II	50	63	82	86	95
MAT	50	60	75	88	95
CAT	50	78	83	97	98
CTBS	50	68	76	86	–

If we accept the reading level equivalent to the average of grade 5 as the minimal standard for meeting individual and social needs, then about 1% of those with 12 years of education, 3% of those with 10 years, 13% of those with 8 years, and 30% of those with 6 years will read below this standard.

If we accept the reading level equivalent to the average of grade 8 as a safer and more desirable standard, then 13% of those with 12 years of education, 24% of those with 10 years, and 50% of those with 8 years will read below this standard.

Applying these rates to the distribution of years of schooling of those aged 14 and over, it is estimated that about 12,250,000 of our people read below the level of grade 5.0 and 45,000,000 below the level of grade 8.0.

Table 7 based on the Coleman Report (1966), shows the number of grade levels below the average white in metropolitan Northeast represented by average Negro scores on the STEP reading test in grades 6, 9, and 12.

Table 7. Grade Levels in Reading below Average White, Metropolitan Northeast.

Grade	Northeast	Negro Metropolitan Midwest	South	Southwest	West	Non-metropolitan South	Southwest	North
6	1.8	1.8	2.1	2.1	2.1	2.7	2.4	2.2
9	2.6	2.3	3.0	3.0	3.1	3.7	3.3	2.6
12	2.9	2.8	3.9	4.1	3.8	4.9	4.5	3.8

The only other ethnic groups whose average scores in grades 6, 9, and 12 were comparable distances below the average white in metropolitan Northeast were those of Puerto Rican background (3.1, 3.3, and 3.7), Mexican (2.4, 2.6, and 3.3), and Indian (2.0, 2.3, and 3.2). Orientals were 1.0, 0.9, and 1.6 grade levels below at these three points. Whites in other sections and non-metropolitan whites were less than one grade level below with one exception: non-metropolitan whites in the South were 1.0 below in grade 12. This amount of educational retardation is sufficiently accounted for by poverty, poor schools, irregular attendance, parental education, and the like without resorting to the hypothesis that Negroes, Puerto Ricans, Mexicans, and Indians have no talent for reading.

Reading and Intelligence

Since the abilities measured by reading tests and "intelligence" tests have much in common, the correlation between the two scores is naturally high. From several sets of coefficients reported in this survey, the median correlation may be conservatively estimated as about .80—about as high as the correlation between one intelligence test and another. Table 8 shows the anticipated grade level in reading of students in four grades at six different levels of ISI (intellectual status index—a refinement of IQ that yields roughly comparable numerical values).

The consistently high relationship between reading and intelligence scores suggests a reason for the failure of many studies to find significant differences in reading when the students are matched on intelligence. Such matching removes what the two tests have in common—so large a fraction of the difference that nothing may be left except error of measurement.

Reading Achievement of Adults

Few reports were found on the tested reading ability of representative samples of adults. Recently the U.S. Department of Defense (1968) published some relevant data on the reading ability of young recruits. In 1966 the Department revised the entrance standards for military service and began accepting men who scored between the 10th and 30th percentiles on the Armed Forces Qualification Test. Table 9 shows the discrepancy between reading level and years of schooling for these "New Standards Men" as compared with regular personnel:

Table 8. Acticipated Grade Level in Reading at 6 Levels of "Intelligence"

ISI:	60	70	80	90	100	130
Grade 12	7.3	8.3	9.4	10.5	11.5	15.0
Grade 10	5.3	6.4	7.6	8.6	9.8	13.1
Grade 8	3.4	4.6	5.7	6.8	8.0	11.4
Grade 6	3.0	3.7	4.5	5.3	6.1	8.4

Source: Manuals for the California Achievement Tests, 1957 edition

Table 9. Reading Level and Years of Schooling of Two Types of Recruits

Grade Level in:	Total Reading	Total Schooling	Caucasian Reading	Caucasian Schooling	Non-Caucasian Reading	Non-Caucasian Schooling
New Standards Men	6.2	10.6	6.2	10.1	6.2	11.3
Regular Personnel	10.9	11.9	11.1	11.9	8.8	11.8

Source: Project One Hundred Thousand: Characteristics and Performance of New Standards Men. U.S. Department of Defense, 1968. ERIC: ED 031 634.

This is another example of the relationship between reading tests and "intelligence" tests, here confirmed at the adult level. It was to be expected that men scoring below the 30th percentile on the AFQT would have a lower grade level of reading ability than years of schooling, and that the discrepancy would be greater for non-Caucasians.

Estimates of the Reading Problem

In 1969 the U.S. Office of Education conducted a questionnaire survey of reading needs reported by teachers and principals in Title I elementary schools with compensatory education programs. Such schools represent areas of greatest need–not a random sample of the schools of the country–but the teachers reported that 43% of their pupils showed a critical need for a compensatory reading program. Of the schools in large cities, 22% reported that more than 70% of their pupils were reading one or more years below grade level, as compared with 8% of rural and 6% of suburban schools. The reading deficit was largest among Spanish-American and Negro pupils and was highly related to estimated family income.

More representative figures based on a nationally representative random sample of elementary and secondary schools were released for the use of this survey by the National Center for Educational Statistics before publication and were analyzed by Dwyer (1971). From 15 to 20 percent of the pupils in these schools have special problems in reading to the extent that they cannot keep up with their classmates without special instruction or assistance. It was estimated that about 4.7 million pupils with such problems are in elementary schools and 2.7 million in secondary schools. Of those with reading problems, 37% in elementary schools and 46% in secondary receive no special instruction or assistance. Again, the need for such treatment was greater in large city schools than in suburban or rural schools.

CONCLUSIONS AND RECOMMENDATIONS

The over-all conclusion of this survey of research from 1960 to 1970 on the present deficit in functional literacy is that the data base does not exist for adequate estimates of this deficit in terms of any criterion of "meeting individual and social needs." As already indicated, the National Assessment of Educational Progress will soon supply the type of data needed: the percent of various samples of our population who were able to perform each of a set of reading tasks representing the kinds of reading that have to be done (or ought to be done) by adults in various walks of life. During this survey, the Office of Education supported the preparation by ETS of a more comprehensive and systematic sample of reading tasks, but these have not yet been applied to any large sample of our population.

In the absence of such data, estimates of current deficiencies in reading had to be based on Census Bureau reports on illiteracy and on years of schooling completed by various segments of our population, modified by test data showing the relationship of reading levels to years of schooling and other factors. It is obvious that such estimates can do little more than single out the types of students and adults who are probably having trouble with reading or are not experiencing the full benefits of reading. "He is not reading as well as the average student in grade 5" (or grade 8) is not a very meaningful or useful definition of a reading problem when we do not know what the average student in these grades can or cannot do in reading or whether this level of reading skill is adequate, more than adequate, or far from adequate to meet individual and social needs. All we can say is: "If the reading level of grade 5 is accepted as adequate, 12 million fall below; if that of grade 8, 45 million." But we simply do not know whether either level is adequate, or adequate in what respects.

For example, in a nationwide Gallup poll (reported by TIME in July, 1965), 77% of the adults questioned said they had not read a book during the past year, while in a comparable sample in West Germany, only 33% said they had not read a book. How safe is the country in the hands of people who do not read books? What deficiencies in reading skills at any level account for this showing? What do our pupils need to be taught that will assure the continuance of the habit of reading books beyond grade 8, where it apparently reaches a peak?

It is obvious that none of the data found in this survey of the literature answers questions like these. We do not have to put up with vague guesses based on the level of reading ability ordinarily attained in grade 5 or 8, and the coming surveys based on defined reading tasks bid fair to supply much of the data we need. Meanwhile, the kinds of data summarized in this bulletin can at least show educational authorities where reading problems are likely to be found, and the approximate number of students and adults who have these problems. But what these problems will turn out to be is a matter–at least for the time being–for their own investigation.

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